



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,321	04/16/2004	Christian Marty	251928US41	7891
22850	7590	03/21/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
NGAMPA, BRIGET P				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
03/21/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com

oblonpat@oblon.com

jgardner@oblon.com

### Office Action Summary

**Application No.**

10/825,321

**Applicant(s)**

MARTY ET AL.

**Examiner**

BRIGET P. NGAMPA

**Art Unit**

1792

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 6/21/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **Detailed Action**

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossi et al. (patent number 4,664,969 hereafter '969), in view of Bolt et al. (patent number 5,807,798, hereafter '798) further in view of Bell et al. (patent number 7,138,084 B2 hereafter '084) and the admitted prior Art(hereafter "APA"), pages 1-2.

With respect to claim 1, 4, 10 and 11, '969 teach a method of coating a surface with refractory material [col 2, lines 43-45]. The refractory coating is made of alumina with binder [abst.]. Specifically, the binder is made of 50% aluminum chloride and 50% water solution [col 6, example 4, lines 53-54]. '969 further teach that the solution is applied by air pressure from a pneumatic apparatus (air brush) [fig 1, spraying apparatus (14)], follow by a drying step [example 4, line 61] and sintering to a temperature of up to 2400°F for 7.5 hours [example 4, lines 62-64]. Per claim 10, the

ramp rate and cool rate would have been determined by one of ordinary skill, based upon the materials being thermally treated, to optimize sintering, porosity and adhesion, as well as minimize detrimental thermal shock.

'969 does not specifically teach the refractory material being applied to a mullite container, nor does it teach alumina being flour.

'798 teaches a refractory filler and binder material applied to the surface of a refractory container made mainly of mullite [col 1, line 54-58] and the filler has been subjected to preliminary milling before mixing [col 5, line 57-60]. Further the APA teaches to coat mullite containers capable of contacting molten titanium with alumina, but wherein the silica binder is detrimental because it reacts with the titanium. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the coating of '969 using an aluminum chloride binder on the mullite as taught by '798 and specifically the mullite container of the APA to eliminate the detrimental silica binder and replace it with an inert alumina binder. '969 and '798 do not explicitly teach firing in an oxidizing atmosphere although firing in the air is apparent. '084 teaches firing of the container in an atmosphere where a supply air is passed [col 11, lines 35-36]. It would have been obvious to one of ordinary skills in the art at the time the invention was made to have modified the process of Rossi, Bolt and the APA in air during sintering in order to form a stable oxide coating which converts the aluminum chloride to alumina.

3. Claims 2-3, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Rossi et al. (patent number 4,664,969 hereafter '969) in view of Bolt et al (patent number 5,807,798, hereafter '798), the APA, and Bell et al. (patent number 7,138,084 B2 hereafter '084) and further in view of Mills (patent number 5,143,777, hereafter '777).

With respect to claims 2-3 and 9, '969, '798 and '084 teach the limitation of claim 1. They do not teach that the coating also comprises a water-soluble organic dye methylene blue in a total proportion of 0.1% to 0.5% by weight. '777 teach that methylene blue dye (which is pyrolyzable) in a coating reveals no cracks [col 4, line 5-6]. It would have been obvious to one of ordinary skills in the art at the time of the invention to have added methylene blue dye to reveal no cracks because '777 teaches that it is a suitable method.

With respect to the proportion of 0.1% to 0.5%, such small proportions are considered trace amounts routinely in experimentation. Therefore it is prima facie obvious not to optimize them as result effective variable.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rossi et al. (patent number 4,664,969 hereafter '969), in view of Bolt et al (patent number 5,807,798, hereafter '798), further in view of Bell et al. (patent number 7,138,084 B2 hereafter '084) as applied to claim 1, and further in view of Tawil et al (patent number 5,725,955, hereafter '955).

With respect to claim 5, '084 further teaches 55-70%  $\text{Al}_2\text{O}_3$  [col 3, line 24] filler and 30-45% binder [col 3, line 24]. '084 do not teach application by brush. '955 teach a suspension containing alumina is applied by brush [abst]. It would have been obvious to one of ordinary skills in the art at the time the invention was made to have used a brush to apply a slurry to a surface because '955 teaches that it is a suitable method. With respect to claims 5/2 and 5/3 are rejected over Rossi ('969), Bolt ('798), Bell ('084) and Mills ('777) as applied to claims 2 and 3 and 9 further in view of Tawil for the same reason stated immediately above.

#### **Response to arguments**

Applicants arguments and comments have been considered on page 6-7 of remarks/Arguments.

It is stated Rossi fails to disclose the composition of the binder by weight. Applicants are reminded the previously rejected claims failed to specify any percentage basis, and therefore the rejection was entirely valid. The arguments are directed to the newly amended claims, which have greater weight percentages of  $\text{Al}_2\text{O}_3$  in water than the binder of the Prior Art (PA). However, applicant's specification shows no criticality or unexpected results, beyond normal process parameters readily ascertainable by one of ordinary skill in the art, example optimizing, viscosity, liquid level, etc. Since binder quantity could be dependant upon the size/surface area of the alumina particles used, optimization of the amount of binder would have been an apparent process variable.

Obviousness—Routine experimentation, Discovery of optimum ranges within prior art general conditions. In re Aller et al 105 USPQ 233. Obviousness—Change of form, changes of size, degree, shape, proportion, and sequence of adding ingredients. In re Rose, 105 USPQ 237; In re Aller et al 105 USPQ 233; In re Dailey et al 149 USPQ 47; In re Reese 129 USPQ 402; In re Gibson 5 USPQ 230; MPEP 2144.04 IV.

Patentably- Change-In general (§51251) Mere adjustment of features to achieve optimum results is not patentable, nor will change in form, proportion or degree support patentability. Thus, the variation in binder amounts does not patentably distinguish over the PA.

Applicants further argue the reference fails to coat a refractory container inert to molten Titanium (Ti). The new rejection under 35 USC 103 above reflects those new amendments. However it is also pointed out that claim 1 as written merely requires the container be “configured to receive” “molten Ti” or the coating be “inert to said molten Ti”. Nowhere in the claim is there a requirement the titanium ever be contacted with the coating, so that the coating merely needs to be capable of being inert to molten Ti. It is the examiner's position that the coating of the PA as presented above would meet that limitation, the rejection overcoming the detriment of the PA cited in the APA.

Finally in response to footnote 4 on page 6, it is simply untrue that the PA “must teach or suggest all the claim limitations”. Applicants are directed to KSR, 82USPQ 2d1396 in rebuttal.

Applicant's arguments as presented are not persuasive and the claims are rejected.

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **BRIGET P. NGAMPA** whose telephone number is (571)270-1866. The examiner can normally be reached on M-F, 830-4:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Pbn                                /Frederick J. Parker/  
Primary Examiner, Art Unit 1792